



# Richmond-Crater Regional Green Infrastructure Project: A Phased Approach



Virginia Coastal Zone  
MANAGEMENT PROGRAM



Robins Foundation



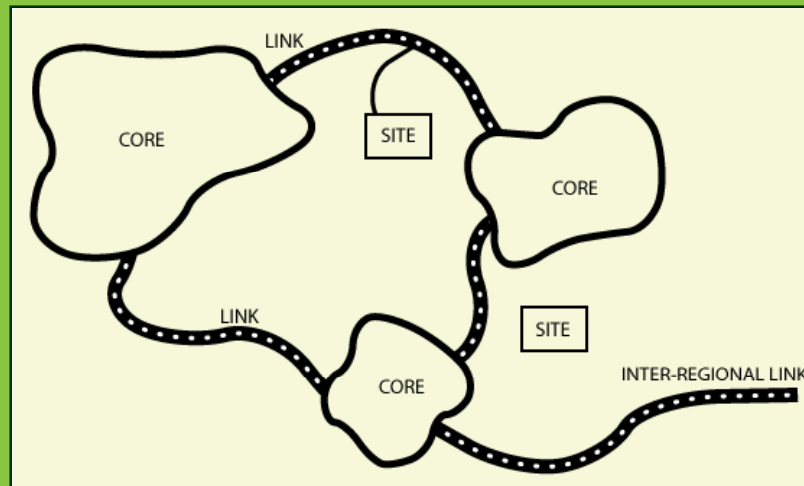
# Regional Green Infrastructure

- ⚙ What is Green Infrastructure?
- ⚙ Why Green Infrastructure?
- ⚙ Work accomplished to date
- ⚙ Plans for the future
- ⚙ 3D Modeling applications and potential
- ⚙ Questions/Comments

# What is Green Infrastructure?

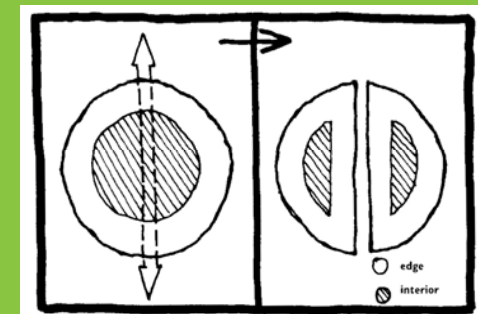
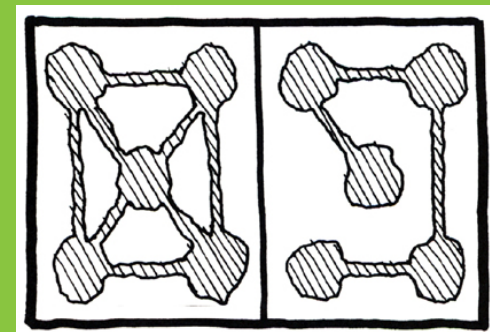
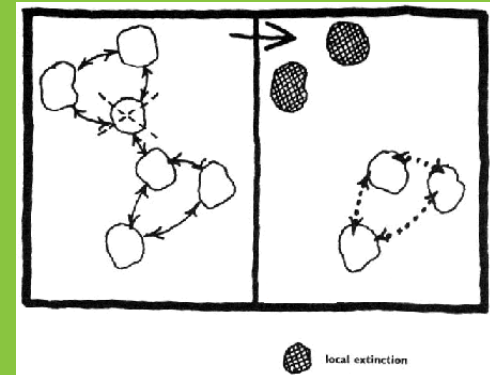
“Strategically planned and managed networks of natural areas, working landscapes and other open spaces that conserve ecosystem values and functions and provide associated benefits to human populations”

**It's all about  
connecting  
the landscape!**



# Connectivity is Key

- ☼ Removal of 1 patch causes habitat loss, habitat diversity loss, & potential reduction of population or localized extinction
- ☼ With habitat connections, more is always better
- ☼ Splitting of large habitats can have drastic effects on interior species





# Why Green Infrastructure?

## Ecosystem Services!

Services that  
people and  
communities  
obtain from  
ecosystems

### Ecosystem Services

#### PROVISIONING

Goods produced  
or provided by  
ecosystems



#### REGULATING

Benefits obtained  
from regulation of  
ecosystem processes



#### CULTURAL

Non-material benefits  
from ecosystems

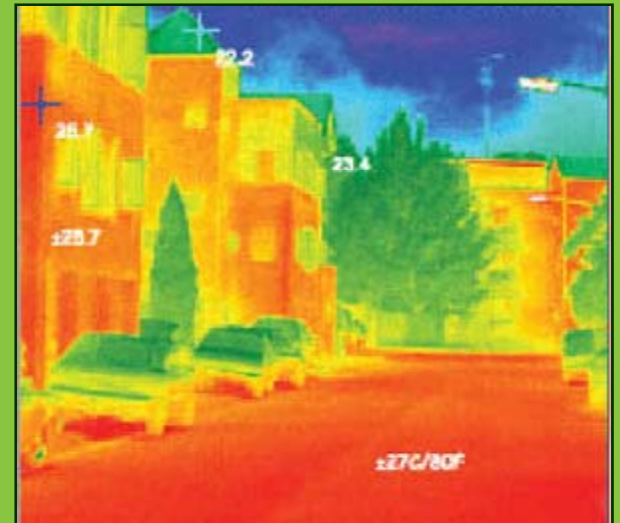


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Image Source: Millennium Ecosystem Assessment

# Ecosystem Services of Green Infrastructure

- ☀ Combats global warming through carbon sequestration
- ☀ Improves air quality
- ☀ Mitigates urban heat island
- ☀ Reduces energy demand



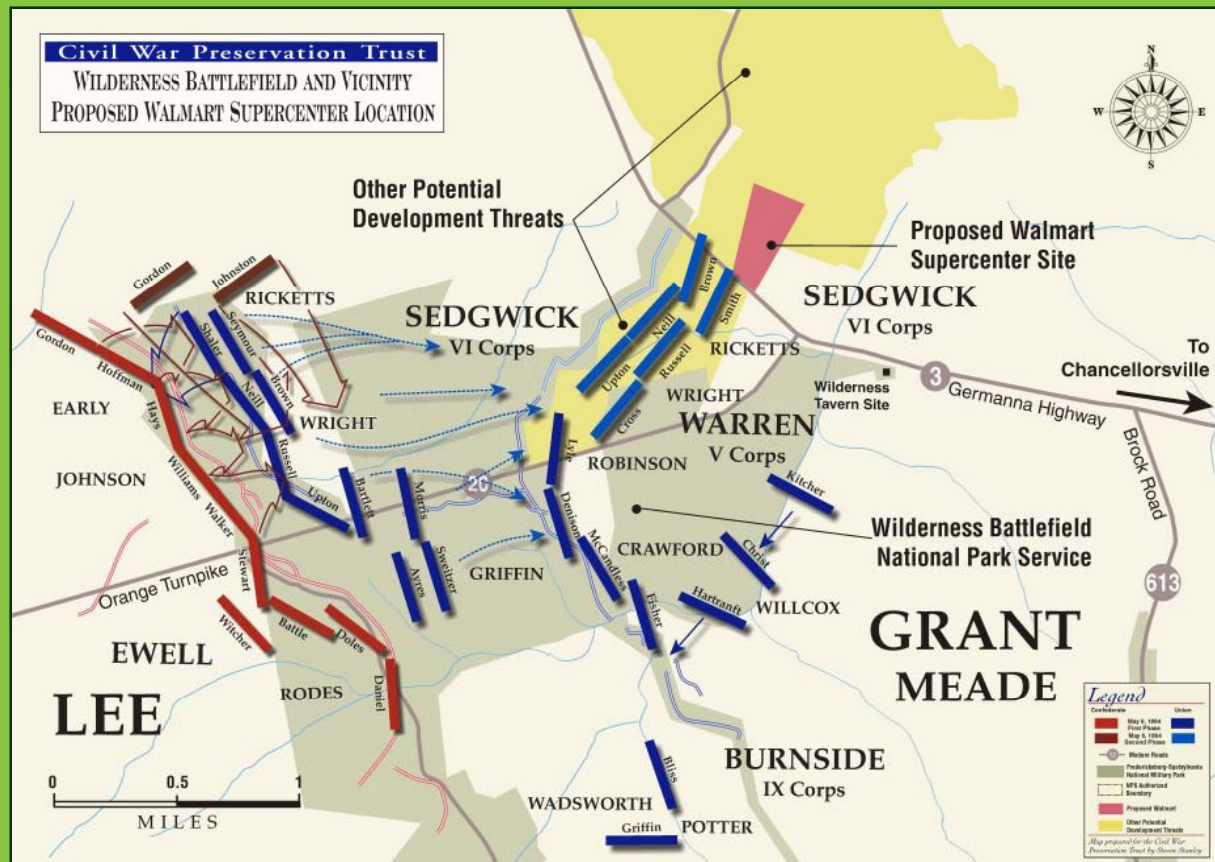
# Ecosystem Services of Green Infrastructure

- ☀ **Protects water quality and supply**
- ☀ **Provides stormwater management**



# Ecosystem Services of Green Infrastructure

☀ Conserves historic landscapes



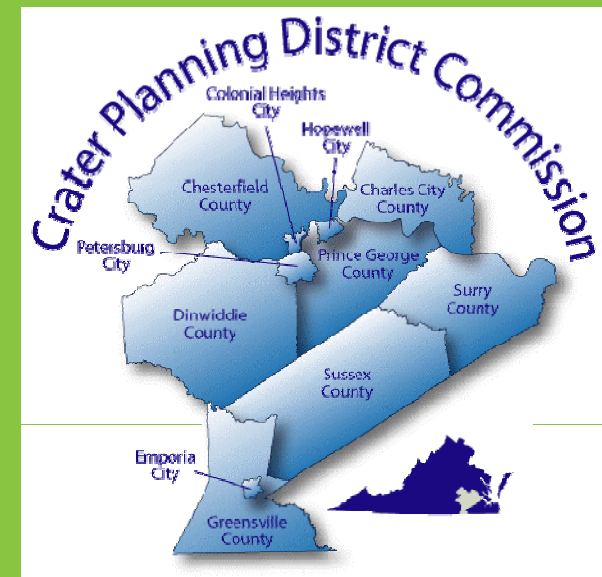


# **Green Infrastructure Planning Applications**

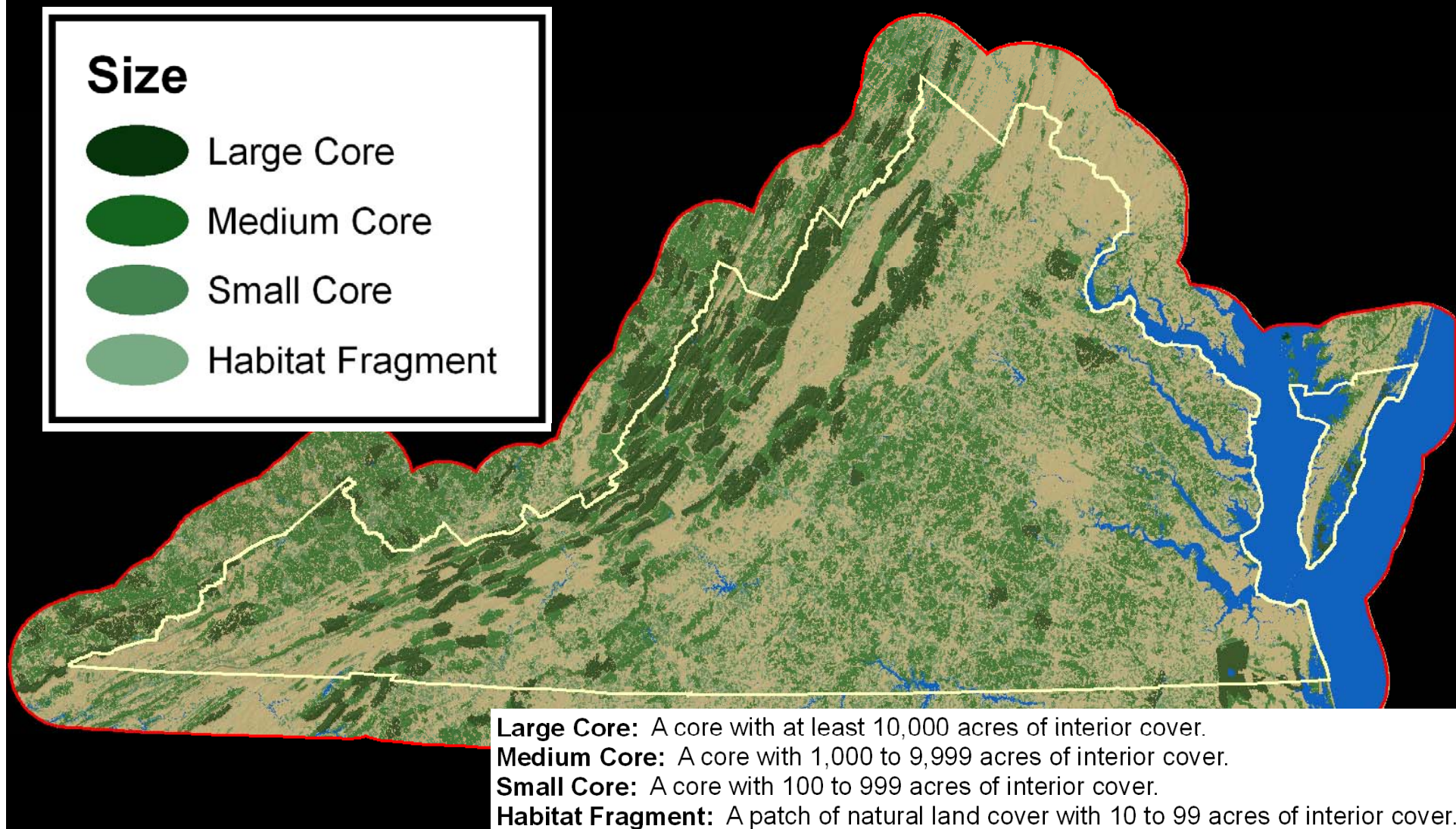
- ✧ **Informing local comprehensive plans**
- ✧ **New ordinance development**
  - ✧ **Basis for up-zoning or down-zoning**
- ✧ **Trail, greenway, and blueway planning**
- ✧ **Park and open space planning**
- ✧ **Heritage tourism and viewshed protection**
- ✧ **Prioritizing lands for conservation**
  - ✧ **Purchase or Transfer of Development Rights Programs**
  - ✧ **Site design for cluster developments**

# Regional Green Infrastructure - Phase I

- ☀ **Coastal Zone Management Program Grant – Sustainable Communities**
- ☀ **Create a regional green infrastructure asset map and prioritized green infrastructure opportunities**
- ☀ **“Update” state model data**

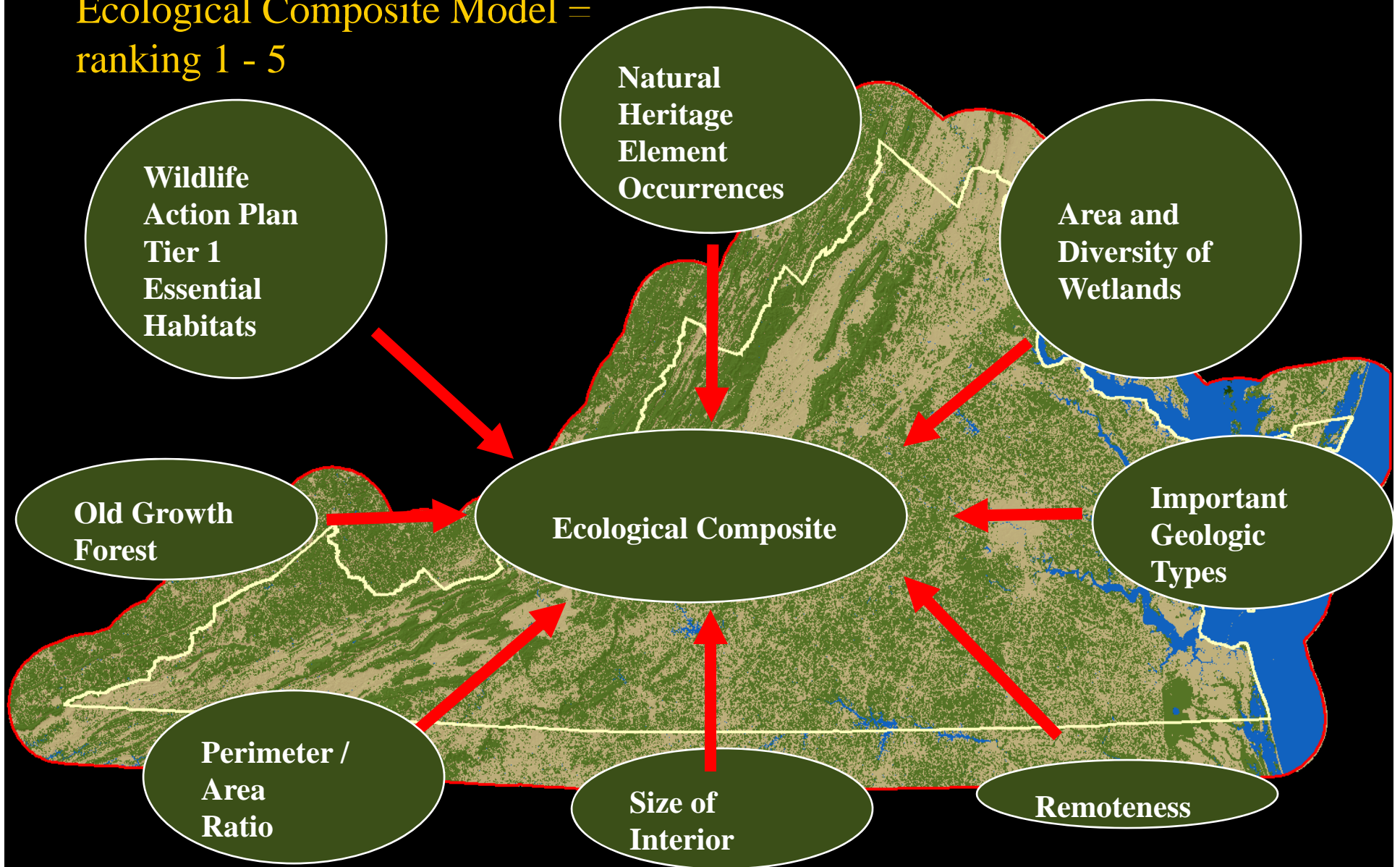


## VA Conservation Lands Needs Assessment: Core Prioritization in Virginia





## Ecological Composite Model = ranking 1 - 5



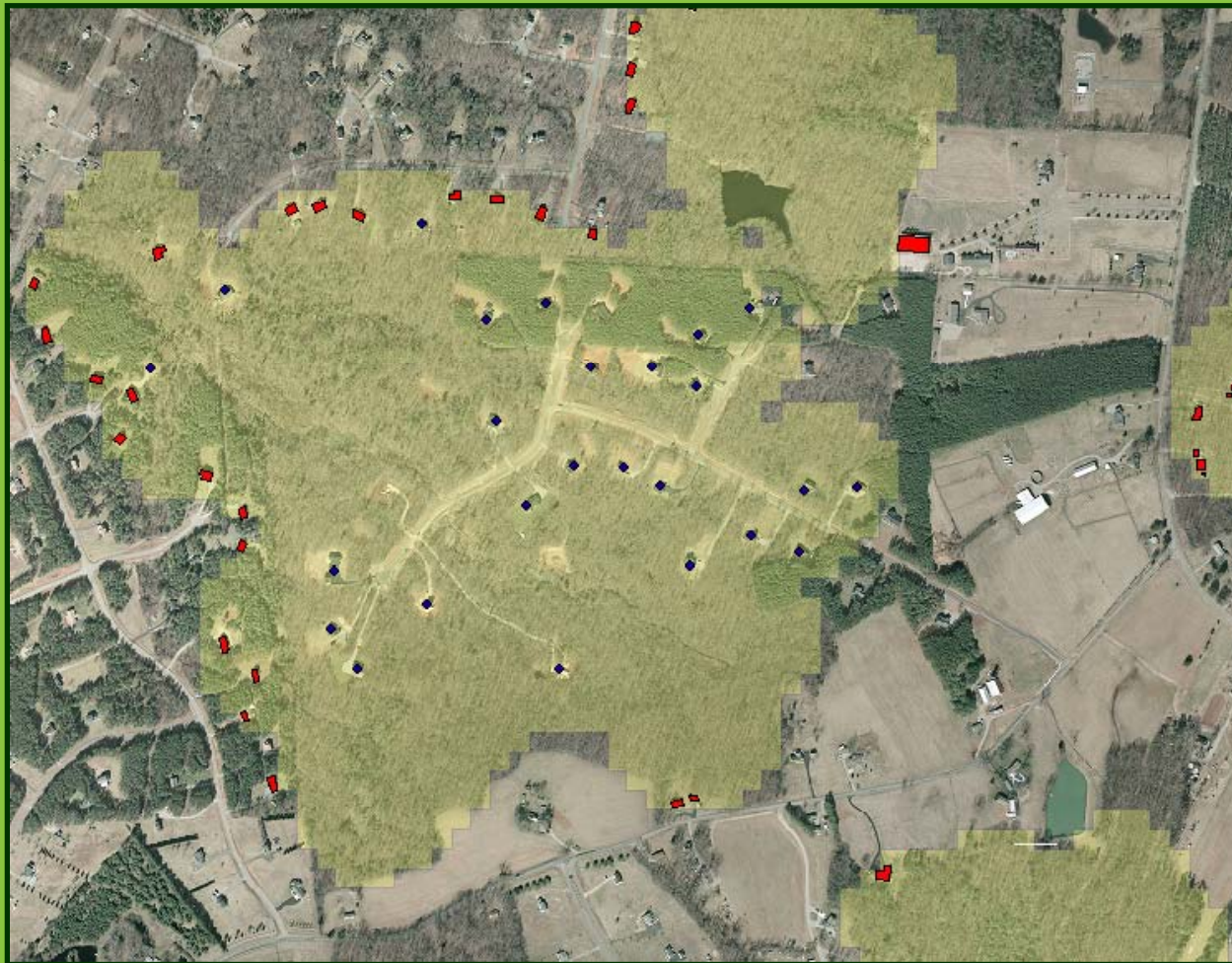


# Method to update cores

**1. Use existing structure data, aerial photography and ecological core GIS data to identify newly constructed structures not accounted for in the model data**

GIS Data Used to Update the Ecological Cores			
Locality	Data Type		
	Existing Structures	Aerial Photography	New Structure Points
Town of Ashland	X	X	X
Charles City County	X	X	X
Chesterfield County	X	X	X
Colonial Heights	X	X	X
Dinwiddie County	X	X	X
Emporia	X	X	X
Goochland County	X	X	X
Greensville County	X	X	X
Hanover County	X	X	X
Henrico County	X	X	X
Hopewell	X	X	X
New Kent Countv	X	X	X
Petersburg		X	X
Powhatan County	X	X	X
Prince George County		X	X
City of Richmond	X	X	X
Surry County	X	X	X
Sussex County	X	X	X

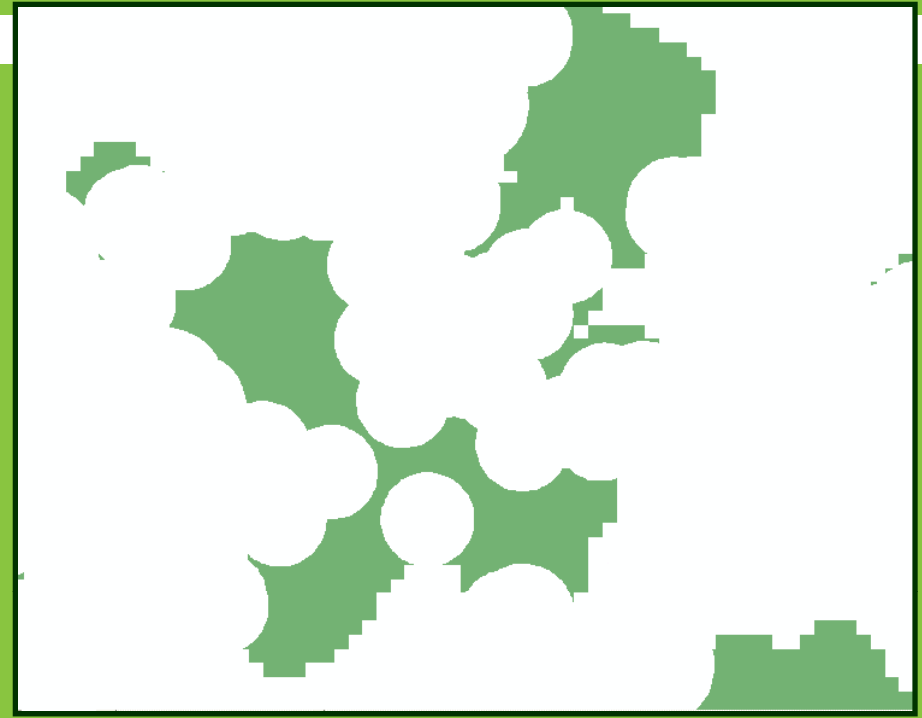
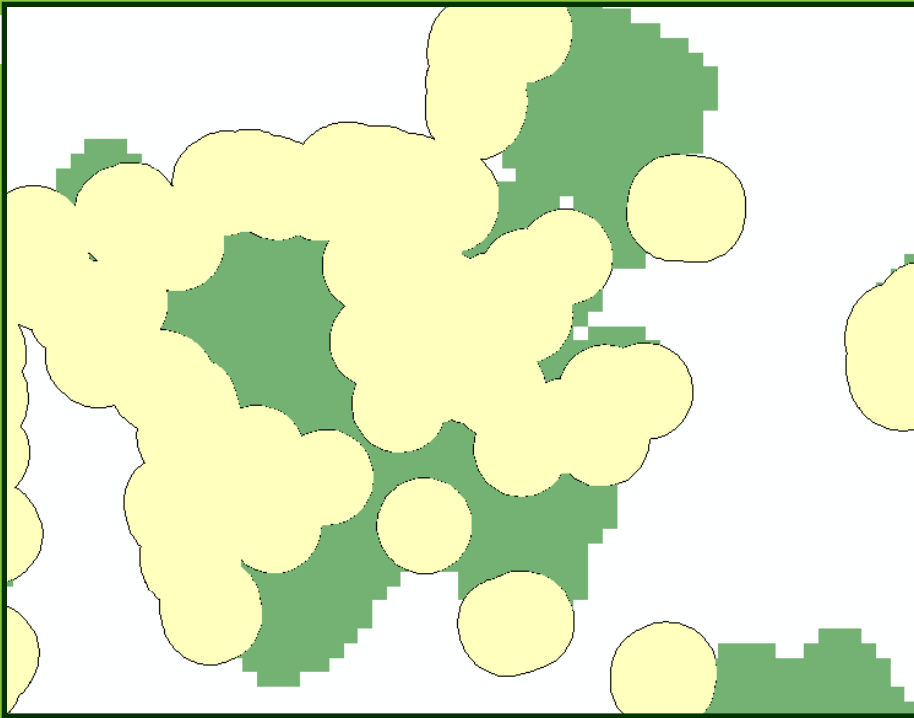
**2. Digitize points over newly constructed structures as identified using the aerial photography.**



### 3. Buffer structures that intersect the ecological cores with 100 meter buffers.

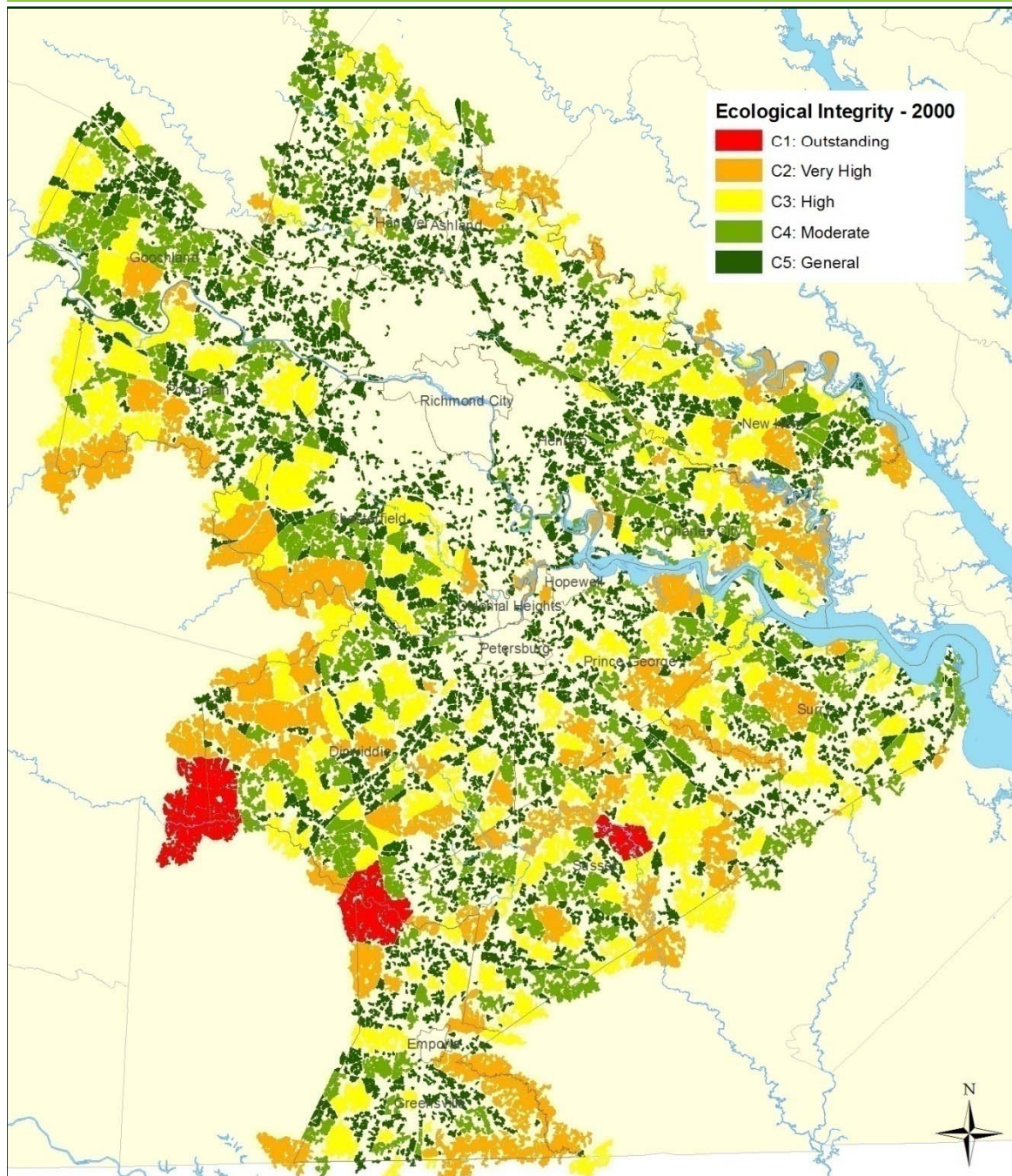




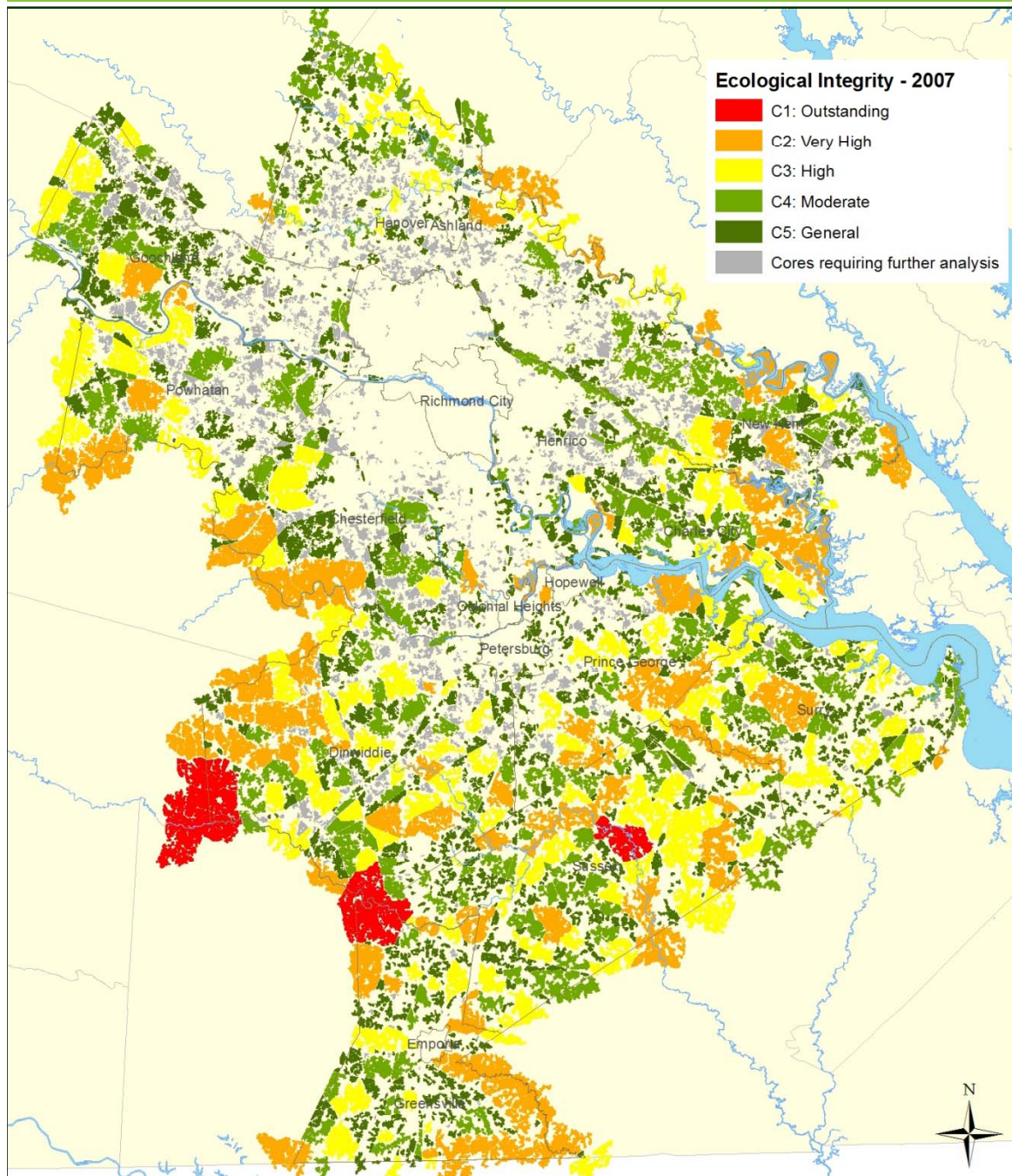


4. Remove structure buffers from ecological cores.
5. Recalculate core acreage, eliminate remaining core fragments below acreage threshold.
6. Recalculate ecological integrity score.





# Original Richmond & Crater Region Intact Cores

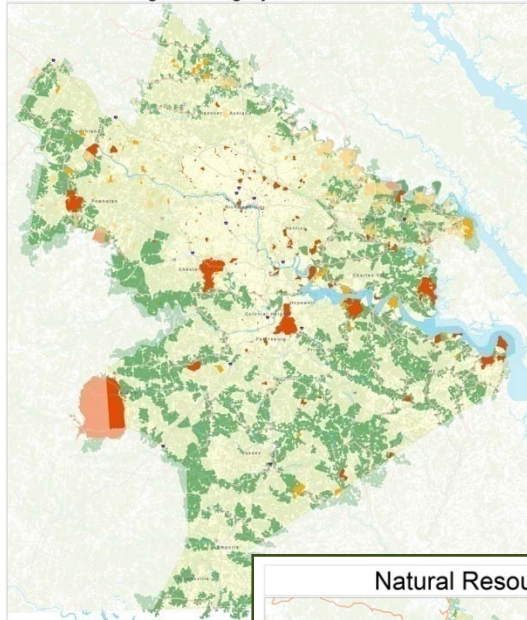


**--Updated--**

# **Richmond & Crater Region Intact Cores**

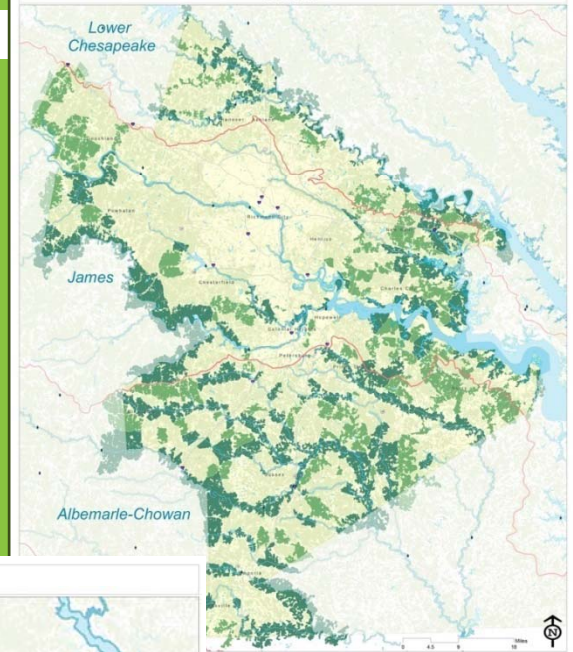


Ecological Integrity and Conservation

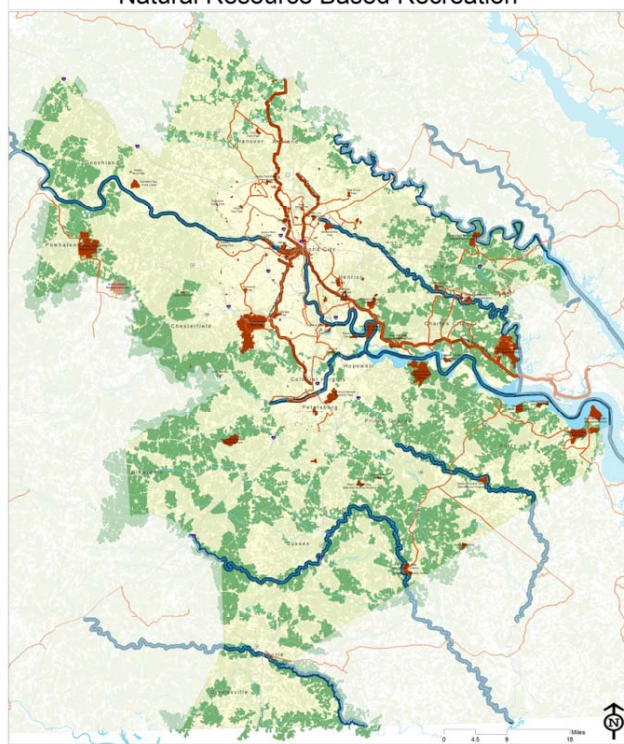


# Theme Maps

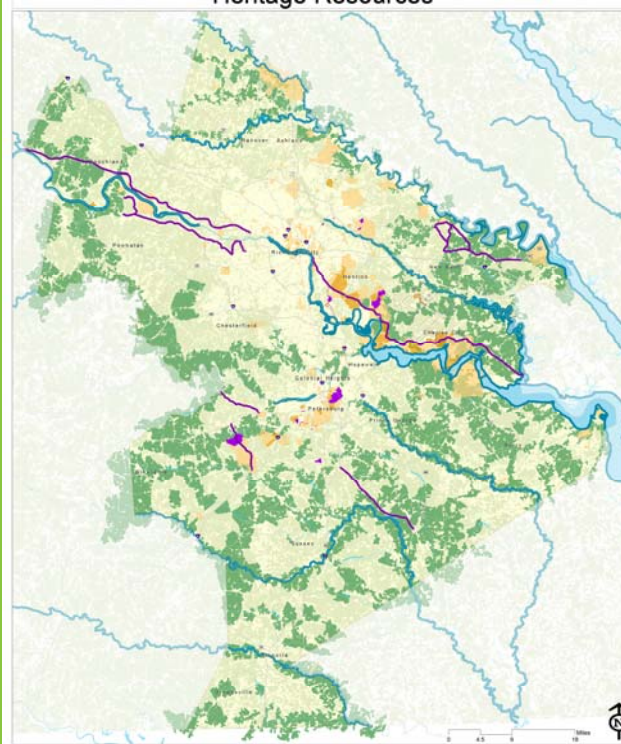
Water



Natural Resource Based Recreation

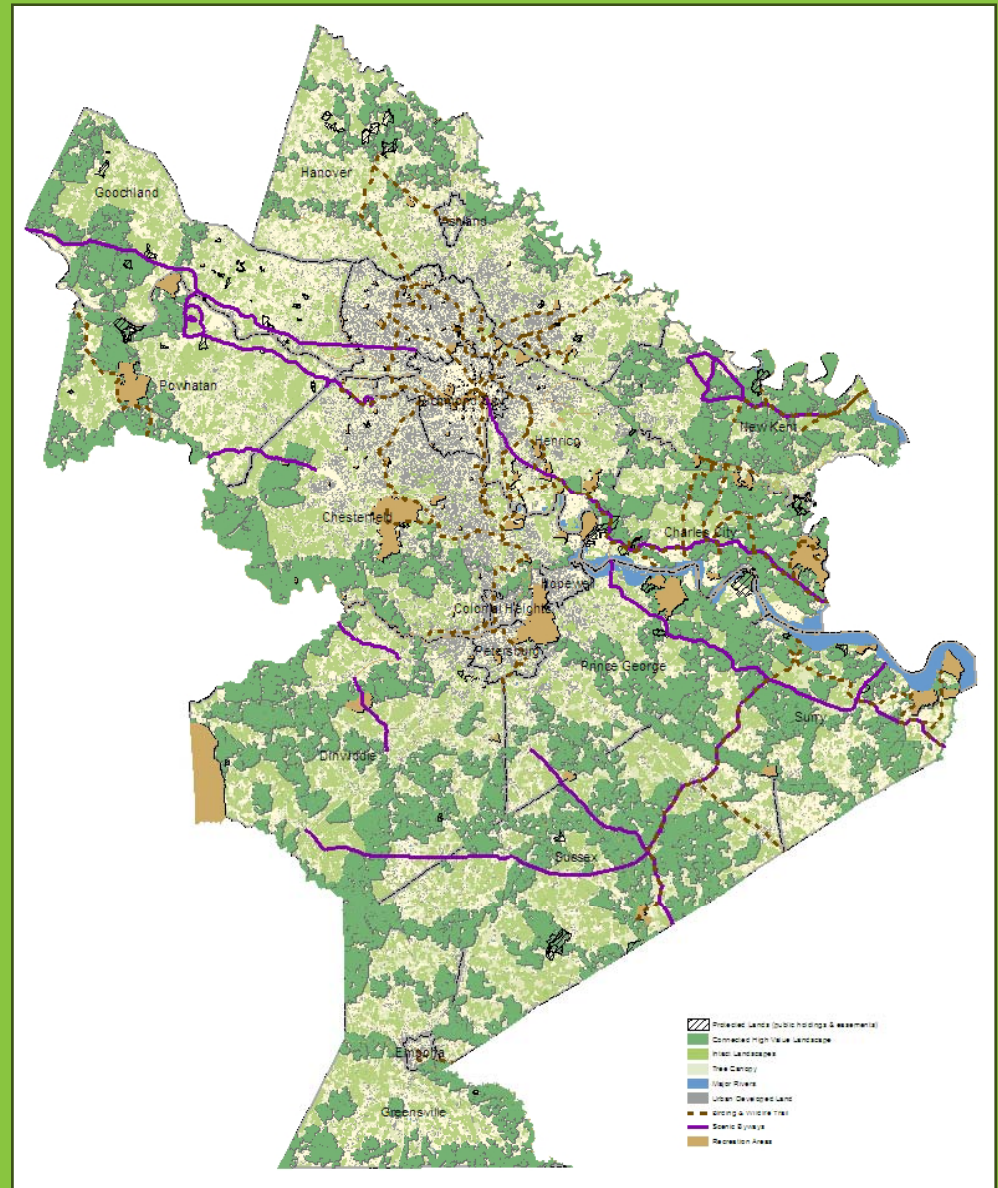


Heritage Resources



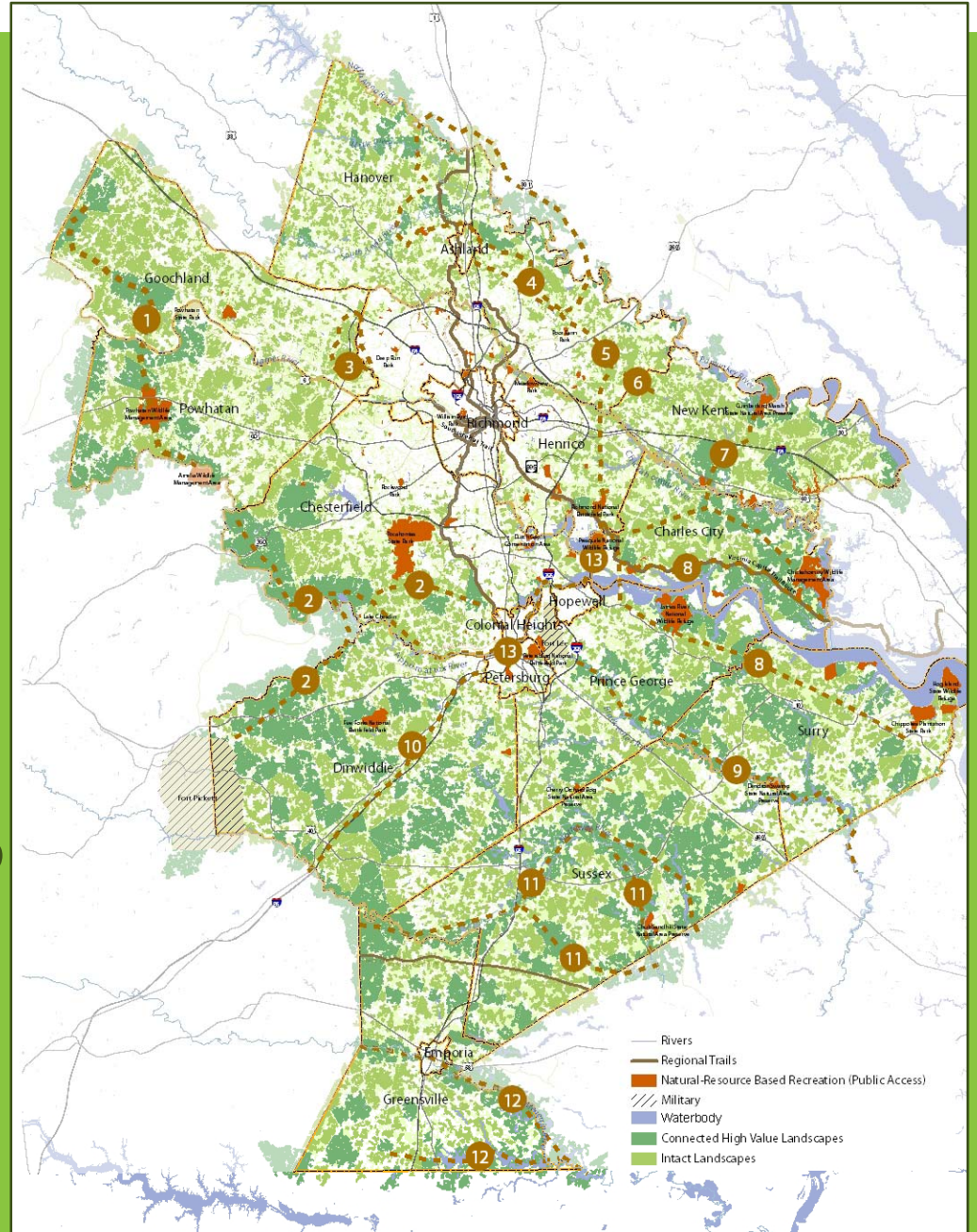
Crater-Richmond Regional  
Green Infrastructure Project  
DRAFT

# Regional Green Infrastructure Asset Map





# Regional Green Infrastructure Opportunities Map



# Green Infrastructure

## Phase II...

- ☀ **Begins October 2009**
- ☀ **Incorporate 3D Modeling to expand analysis and planning capabilities of the project**
- ☀ **Two pronged approach:**
  - ☀ **Urban** – Work with City of Richmond on a Green Infrastructure asset map; can be used as a model of other urbanized localities in the region
  - ☀ **Rural** – Work with individual localities to educate and add implementation measures to local plans/ordinances